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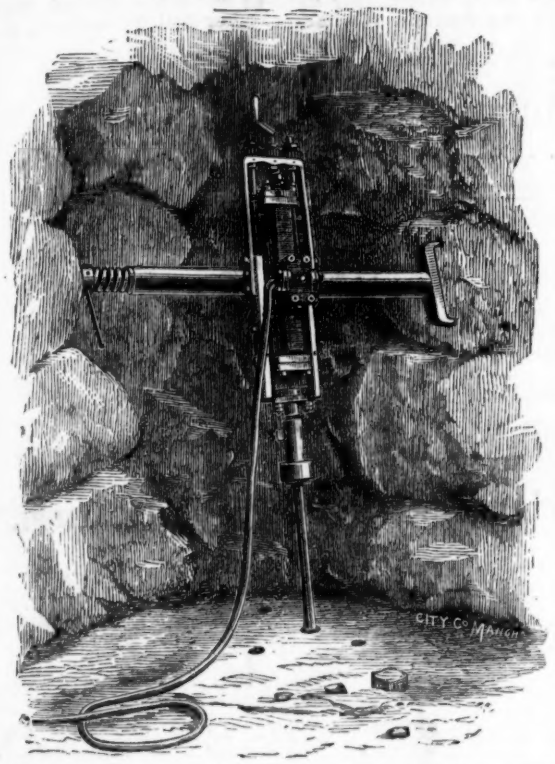

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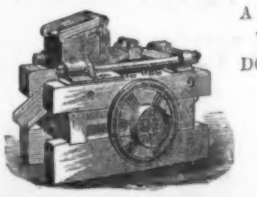

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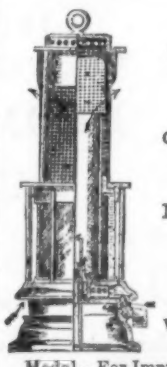

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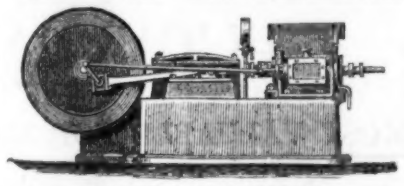

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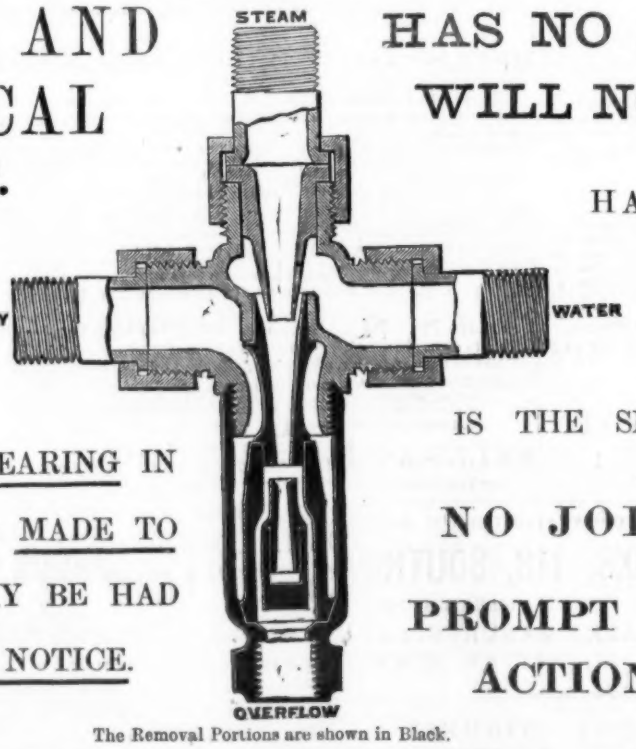

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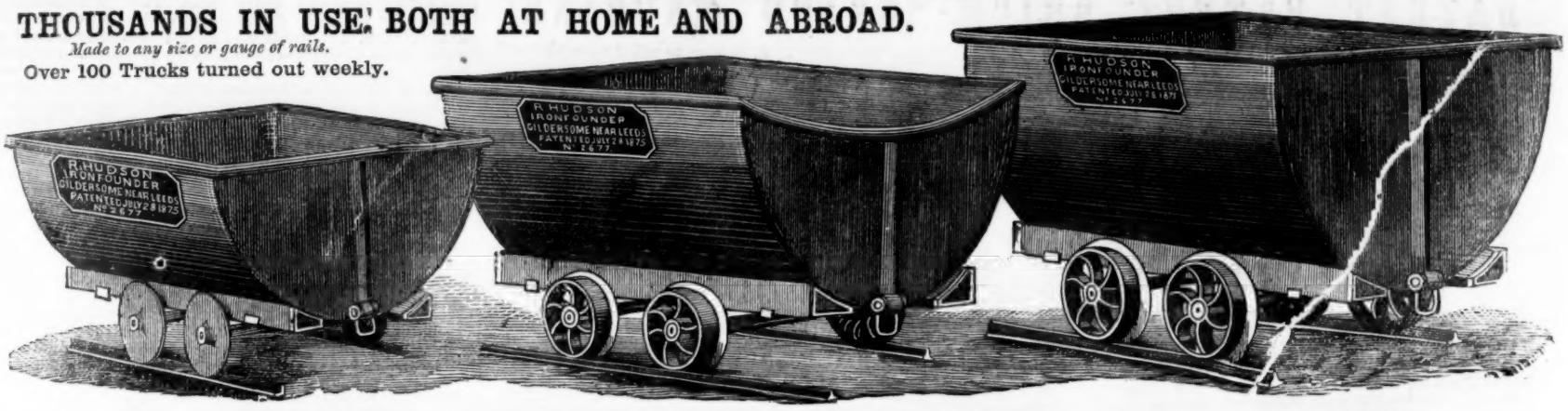

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I am, Sir, yours truly, J. ASHCROFT, Chief Engineer.

Portsmouth, February 20, 1883.

Mr. John Bell, Asbestos Works, London.

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Mr. John Bell, 118, Southwark Street, S.E.

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Yours faithfully, (Signed) J. H. CUNDALL, Works Manager.

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The engineer of a world-renowned firm writes:—"There is not, nor can there be, any doubt as to the excellence of your Asbestos and Indiarubber Woven Sheeting—as a jointing material it is unrivalled."

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DEAR SIR,—I have much pleasure in saying that the Asbestos Yarn and Soapstone Packing gives every satisfaction; indeed, better than we expected. We have a locomotive packed with it, and has been running five months (and think of the piston speed with our small wheels). I think the Soapstone a great improvement, as it keeps the packing elastic, and prevents it getting hard. I am very pleased with its working, and also the very low price for such good lasting packing. The Asbestos Yarn we find is very useful, and answers admirably.

(Signed) Yours truly, W. WILLIAMS.

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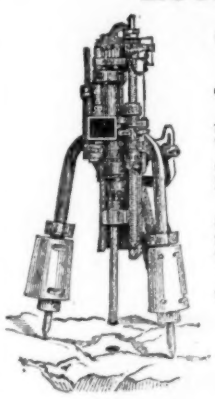

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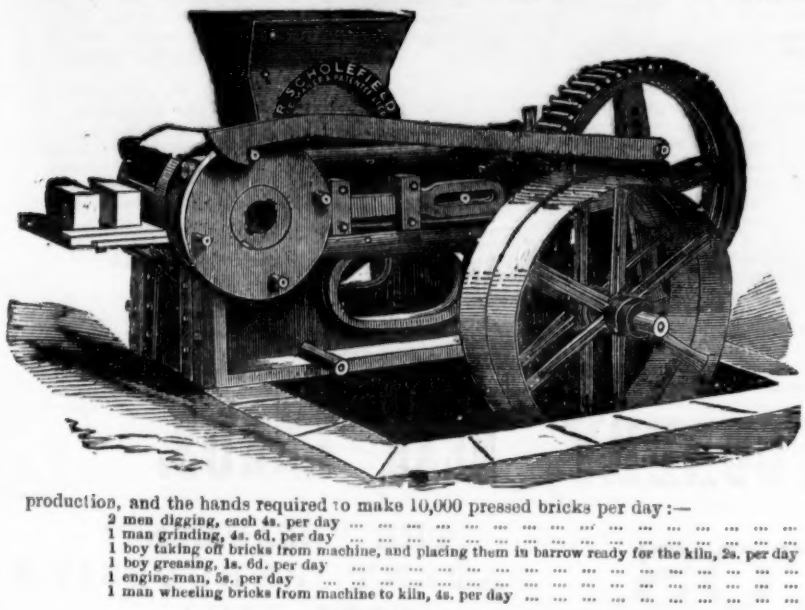
APPLICATION.

R. SCHOLEFIELD'S LATEST PATENT BRICK-MAKING MACHINE.



R. S. begs to call the attention of all Colliery Owners in particular to his PATENT SEMI-DRY BRICK MACHINE, and the economical method of making bricks by his patent machinery from the refuse that is taken from the pits during the process of coal-getting, which, instead of storing at the pit's mouth (and making acres of valuable land useless) is at once made into bricks at a very small cost, by R. S.'s Patent Brick-making Machinery. If the material is got from the pit hill, the following is about the cost of production, and the hands required to make 10,000 pressed bricks per day:—

2 men digging, each 4s. per day	£0	8	6
1 man grinding, 4s. 6d. per day	0	4	0
1 boy taking off bricks from machine, and placing them in barrow ready for the kiln, 2s. per day	0	2	0
1 boy greasing, 1s. 6d. per day	0	1	6
1 engine-man, 5s. per day	0	5	0
1 man wheeling bricks from machine to kiln, 4s. per day	0	4	0
Total cost of making 10,000 pressed bricks	£1	5	0, or 2s. 6d. per 1000.

(SETTING AND BURNING SAME PRICE AS HAND-MADE BRICKS.)

N.B.—Where the material can be used as it comes from the pit, the cost will be reduced in digging.
As the above Machinery is particularly adapted for the using up of shale, bind, &c., it will be to the advantage of all Colliery Owners to adopt the use of the said Brick-making Machinery.

THE MACHINES CAN BE SEEN IN OPERATION AT THE WORKS OF THE SOLE MAKER AND PATENTEE DAILY.

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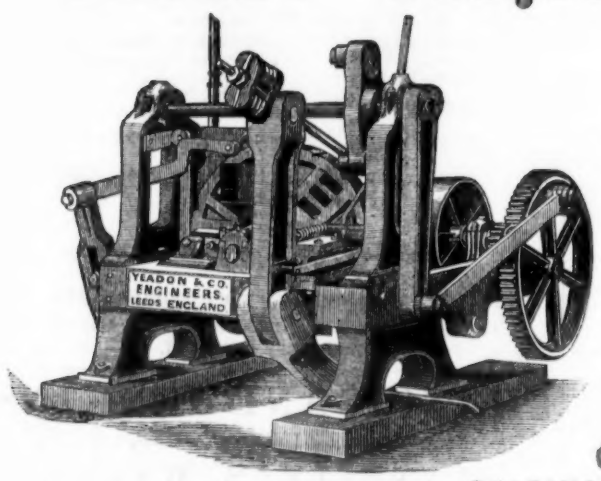
KIRKSTAL ROAD, LEEDS.

PATENT BRIQUETTE MACHINE.



GREAT SAVING NO WASTE COAL.

NO COLLIERY SHOULD BE WITHOUT.

These Machines utilise small coal or coke by making it into Briquettes or blocks compressed fuel at the rate of 36,000 per day The cost of preparing, mixing, and making is under One Shilling per ton. The Briquettes sell readily for Locomotives, Household, or other purposes. Full particulars on application to

YEADON AND CO.,
LEEDS,
ENGINEERS AND CONTRACTORS

FOR EVERY DESCRIPTION OF PLANT FOR

Collieries, Mines, and Brickworks,

TESTIMONIALS

Messrs. Yeadon and Co, Leeds HARBONNAGE DE BERNISSART, PRES PERUWELZ (BELGIUM), JANUARY 4TH, 1878.
I continue to be **perfectly satisfied** with the work performed by the two patent Briquette Machines as well as with that of the Steam Engine, Mixer, &c., which you supplied a few months ago for the manufacture of compressed slack Briquettes, and that I can recommend them as being the **best machines** I know of, after having carefully studied **all the Briquette Machines** constructed at home and abroad.
G. FAGES, General Manager.

SOCIETE DES CHARBONNAGES REUNIS DU RIEU DU CŒUR ET DE LA BOULE. QUAREGNON (BELGIUM), SEPEEMBER 13TH, 1879
Messrs. Yeadon and Co., Leeds.
We are **entirely satisfied** with the erection and working of the two Briquette Machines, as well as the Steam Engine and Mixing Apparatus.
A. FRANEAU, Managing Director.

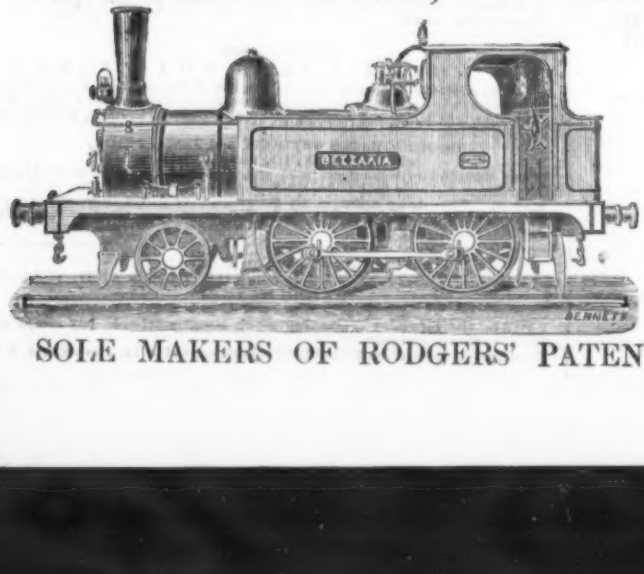
Messrs. Yeadon and Co., Leeds. CHARBONNAGE DE BERNISSART, PRES PERUWELZ, JANUARY 24TH, 1879
I continue to be highly satisfied with the Briquette Machines which you supplied in 1877. They do their work very well, and produce the Briquettes very regularly, and of a good quality.
G. FAGES, General Manager.

Messrs. Yeadon and Co. SOCIETE HOUILLERE DE VENDIN-LEZ-BETHUNE, PAS-DE-CALAIS, DECEMBER 2ND, 1880.
I have the honour to inform you that the Briquette Machines **work very well.** The Briquettes are **very well made.** I am highly satisfied with your workmen, who have done their work very well.
SYLVA CATTIER, General Manager.

The undersigned, Civil Engineer of Mines, Chevalier of the Legion of Honor, Consulting Engineer fo the Mines de Vendin-lezto, Bethune, Pas-de-Calais, certifies that the Briquette Machinery for making Briquettes of Coal, supplied by Messrs. Yeadon and Co. to the above Company **is working to their entire satisfaction.**
E. LISBET.
Lille, December 28, 1880.

ESTABLISHED 1860.

HUDSWELL, CLARKE, AND CO.,
LEEDS.



LOCOMOTIVE
TANK ENGINES

OF ALL SIZES AND ANY GAUGE OF RAILWAY.
OF GREATLY IMROVED CONSTRUCTION
FOR MAIN OR BRANCH RAILWAYS.
CONTRACTORS, IRONWORKS, COLLIERIES.

For Cash or Deferred Payments.

SOLE MAKERS OF RODGERS' PATENT WROUGHT-IRON PULLEYS.

FOREIGN MINING AND METALLURGY.

Recent cold weather occasioned a fairly well sustained demand for household coal in Belgium, but the spring having commenced this demand will now, of course, subside. There is still a considerabl demand for industrial coal, although with the commencement of spring a check is generally experienced in all branches of the coal trade. Stocks have been considerably reduced as compared with last year, and the case of one colliery is reported which, in order not to lose its connection, has been obliged to purchase coal from its neighbours so as to meet its engagements. Upon the whole, quotations for coal have been well supported in Belgium. Coke has also been firmly maintained, especially in the Centre, where the current rate has been 14s. 10d. per ton. The demand for coal has continued upon a large scale in Germany, a rather large number of transactions having been concluded. In small current transactions attempts have been made to establish a slight advance in prices, although this movement can scarcely be said to be general. Several Belgian coal mining companies have held their meetings during the last few days. The profit realised by the Grand Bouillon du Bois de St. Gleislain Company for 1882 is returned at 6556*l.*, or 3920*l.* more than in 1881. The profits of 1882 enabled the company to completely discharge the expenses attending certain preparatory works undertaken during the 12 months, and no dividend will be paid for the year. The Forte Taile Colliery Company has resolved to increase its capital to 80,000*l.*, and to undertake the production of agglomerates upon a large scale. An amalgamation has taken place between the Flénu and Cracket Picquery Companies.

The lapse of another week does not appear to have brought with it any material change in the Belgian iron trade. Affairs do not move on very well, but no break is observed in the industrial horizon. Orders have become scarce, and some of the works find themselves short of employment, Current orders have come to hand to a sufficient extent to keep the rolling mills going, but a different state of things is required at this period of the year, especially having regard to the tone of the markets for new materials. The rolling mills possessing specialities are fairly well off for work, and the same may be said of the locomotive construction establishments which have still employment assured to them for some time to come; but upon the whole the situation is dull, if not gloomy. Pig has been well maintained, but for this it appears tolerably certain that quotations for iron would decline. They cannot, however, be reduced under present circumstances, and accordingly the markets remain in much the same state. English pig has been maintained at 2*l.* 7s. 2d. to 2*l.* 8s. per ton, while casting pig has ranged from 2*l.* 18s. to 3*l.* per ton. As regards refining pig hard iron has made 2*l.* 18s. per ton, ordinary pig 2*l.* 6s. per ton, and mixed pig 2*l.* 2s. per ton. The Luxembourg group has maintained its casting pig without change at 2*l.* 10s., and refining pig at 2*l.* 6s. per ton. At these rates the rolling mills cannot sell No.1 iron below 5*l.* 4s. per ton, although concessions might, perhaps, be made with regard to the difference of 8s. per number. No. 2 plates have made 7*l.* 4s. per ton, and No. 3 3*l.* 18s. per ton; plates of commerce have been quoted at 8*l.* 16s. to 9*l.* 12s. per ton.

The French iron trade has not experienced much change. It can scarcely be said that there has been any further fall in prices, but work has become scarce, and the forgemasters of the Nord are, more or less, uneasy as to the future. Prices have not varied to any extent, but rather than consent to a reduction forgemasters would probably prefer to follow the example of the proprietors of blast-furnaces and reduce their production. Merchants' iron has continued to be quoted at 7*l.* 12s. per ton. The German iron trade has still presented a fairly good tone, and some important transactions have taken place in the case of pig, good marks being specially in demand. Rolled iron has also been firm, but prices have not advanced, as had been hoped in some quarters would be the case. The various descriptions of iron have been in fair demand; plates especially have been well supported. The steelworks have a good many orders on hand, and some new contracts are anticipated on railway account The consumption of puddling pig has not increased sufficiently in Westphalia to admit of the blast-furnaces resuming their production to the full extent, but they are sufficiently occupied to induce their proprietors to refuse to make any concessions to the owners of rolling-mills. The Loth Company (Belgium) realised a profit last year, after deducting all charges, of 12,898*l.* Out of this balance the Council of Administration was enabled to recommend a dividend at the rate of 6 per cent. per annum, or 1*l.* 4s. per share.

PLATES FOR ELECTRICAL STORAGE BATTERIES.

With a view to increase the capacity of the plates of secondary or storage batteries, Mr. C. CUTTRISS, of Duxbury, Massachusetts, proposes to make them of a porous or spongy nature, and so that the active material shall become a part of the plate and continue throughout its dimensions. The invention consists in employing soda, either in its simple or compound forms, or other suitable or equivalent material, either mixed with red lead, peroxide of lead, chromate of lead, or other salts or oxides of lead, or by itself, and preferably in a granular state or pieces of moderate size, as a material with which to fill an ingot or suitable mould, into which, when duly heated, melted lead is poured so as to fill up the interstices between the granules or pieces of soda or other material with which the ingot is filled, and afterwards removing the soda by boiling in water, or other suitable means, the plate then being filled with small holes or cavities and perfectly porous throughout its mass. Or, instead of pouring the lead into an ingot, the soda or other material can be stirred into melted lead when about the point of settling or solidifying, and then, when placed on a suitable slab or table, rolled out into a sheet. The plate can then be formed or peroxidised in the usual manner.

A mode of procedure which has been found to answer well, is to take a quantity of soda, and while drying it incorporate a quantity of the salts or oxides of lead, so that when it becomes a pasty or doughy mass it can be rubbed through a sieve to form granules; and afterwards thoroughly dry it and sift through a finer sieve to remove the fine particles or dust; the ingot, which is of suitable dimensions, is made deeper than the plate that is to be cast in it, so as to allow a head of lead of several inches, which makes the plate more compact. When the soda, or other material, is in the ingot, a piece of iron is placed on it to prevent the soda rising up the ingot as the lead is poured in. Previous to pouring in the lead the ingot and contents are heated to about the melting point of lead. After the plate has been removed from the ingot the soda can be removed by any suitable treatment, leaving a plate porous throughout its mass; and if oxides or salts of lead were previously mixed with the soda they are left in the plate in a porous condition and intimately connected with the outer lead walls of each separate cavity, the said walls forming a conducting medium through which electrical connection is made.

HOLLOWAY'S PILLS—WEAK STOMACHS.—The distressing symptoms arising from enfeebled digestion are almost numberless, and all of them can be readily dispelled by these admirable pills. They clean the furred tongue, and remove all unpleasant tastes from the mouth, with flatulency and constipation. Holloway's pills rouse the stomach, liver, and every other organ, helping digestion to that healthy tone which fully enables it to convert all we eat and drink to the nourishment of our bodies. Hence these pills are the surest strengtheners and the safest restoratives in nervousness, wasting, and chronic debility. Holloway's pills are infallible remedies for impaired appetites, eructations, and a multitude of other disagreeable symptoms, which render miserable the lives of thousands of our fellow creatures. These pills are approved by all classes.

Original Correspondence.

MINING PROSPECTS OF NEW MEXICO—No. II.

SIR,—Before proceeding to the special subject of this letter, permit me to correct one or two typographical errors that crept into my former letter. Apart from the mistake of spelling my name incorrectly, and one or two slighter mistakes, I am made to say that location notices must be recorded inside of nineteen days—it ought to have been *ninety*, as given in the letter; also proofs of labour are allowed *sixty* days, and not thirty as printed, although this last blunder may possibly have been mine, and not the compositor. So much for criticisms.

Anyone looking at a railroad map of New Mexico will see that the main artery of travel through the territory is by means of the Atchison Topeka Santa Fé Railroad, which enters the territory near the north-east corner, and leaves it by two different outlets—one on the south at El Paso-del Norte on the Rio Grande, where connection is made with the Mexican Central Railroad for Chihuahua, &c.; the other in the south-western county of Grant, at Deming, where it connects with the Southern Pacific for California and with the Sonora Railroad for Guaymas.

The mining districts first referred to in these letters will be the gold, silver, and copper camps which lie more immediately adjacent to these railroads, leaving the coal fields and those more disconnected districts till afterwards. The districts around Las Vegas have not received that amount of attention that it is natural to suppose they would have received, lying, as they do, at a comparatively short distance from the largest and most important city of the territory. The foothills of the Rocky Mountains extend to within about 5 or 6 miles of this city to the west, and among them the San Carlos, Mineral Hill, and Sweepstakes mining districts have been formed and partially prospected. In the San Carlos district, about 7 miles from town, disconnected pockets of copper ore, assaying from 12 to 26 per cent. copper, with from 1 to 5 ozs. of silver, have been found, but no distinct lode, and no effort seems to have been made to discover one. Mineral Hill is situated about 30 miles from Las Vegas, and is essentially a low-grade carbonate camp. Extensive deposits of lime carbonates, carrying from a trace to 15 ozs. of silver, have been found, but few or no fissure veins. The Sweepstakes district lies south of Mineral Hill, and so far as developed contains fissure veins carrying low-grade ore, being an iron-stained quartz, running from 2 to 20 ozs. of silver to the ton. Until ores can be successfully treated for less than $20 per ton (the present average charge at smelters) these mines are comparatively worthless, although it is more than probable that more careful and extensive prospecting further westward towards the main range would develope mines equally good to those that exist both to the north and south.

Leaving Las Vegas by rail, and proceeding southward for about 50 miles, we reach Glorietta, passing the ruins of the old Pecos church and town, the birthplace of the famous Aztec Emperor Montezuma, and which was visited by the first Spanish conquistadors under Coronado. Leaving the railroad, and ascending the Rio Pecos for about 28 miles, we reach a new, but very promising, mining district, known as the Cooper camp. The mineral veins lie north-east and south-west, which is also the general direction of the range. Those so far discovered lie between huge walls of limestone on the one hand and granite on the other, these walls being from 150 to 300 ft. apart. Next the limestone, which lies to the north, and is highest up the mountain, is an extensive copper lode, assaying from 25 to 60 per cent. copper, consisting of green carbonate with a considerable mixture of red oxide and copper glance, and carrying a varying quantity of gold and silver. Lower down the mountain, and adjoining the granite wall, is an equally valuable silver galena lode, carrying some blende; the space between these lodes is filled with what might be termed debris from the adjacent walls. In several places the copper had flowed up and over the galena lode, forming a copping, which led the first discoverers to believe that they had got an enormous vein of copper ore, as there were no surface indications of the underlying lode of silver galena.

These claims so far as discovered are largely in the hands of a company of men of means, who are rapidly developing them, and who propose in the near future to erect suitable reduction-works, for which there are abundant facilities, a never-failing supply of water, an unlimited supply of fine timber, while coal is said to have been found in the vicinity. This camp is tributary to Las Vegas and Santa Fé.

Returning to Glorietta we proceed by rail over the summit of the range, and down the picturesque Apache canyon, until we reach the town of Los Cerillos, 83 miles from Las Vegas. This town gives its name to the Los Cerillos Mining District, one of the largest, best defined, and oldest camps in the territory. It covers an area of about 36 square miles, and contains several hundreds of claims more or less developed. Towards the north end of this camp rises the main peak of the Cerillos Mountains, rising over 2000 ft. above the surrounding prairies. At its base are numerous foothills of from 500 to 1000 ft. in height, and it is in these foothills that the mines are chiefly located. The general formation is porphryritic, with occasional dykes of granite and clay-slate. These foothills are cut by numerous gulches, giving great facilities for tunnelling.

While this is essentially a silver camp, yet many of these lodes carry a considerable quantity of gold. The veins or lodes, as a rule, show very narrow on the surface, in many instances being practically blind lodes. Yet they widen rapidly as they descend, until they reach from 75 to 100 ft., when their normal width seems, as a rule, to become established. In addition to their widening as depth is gained they, as a rule, also rapidly increase in value.

The veins may be roughly divided into two classes—those consisting of heavily iron stained quartz mixed with galena, and those carrying galena and iron pyrites in a calc spar. Of the first class the famous Mina del Terra, an old Spanish shaft, may be taken as the representative; and of the other the Good Hope, which at 70 feet shows a vein of nearly 8 feet of mineral of the last-named character. There are numerous other equally good mines with shafts from 100 to 400 ft. deep, although, strange to say, little or no mineral has been shipped, owners contenting themselves with doing their annual legal assessments, and resting on their oars. This is partly to be accounted for by the fact that the larger proportion of the mines is held by poor men, the original prospectors, who are of a very nomadic character, wandering from camp to camp during the time not actually required to do their assessments, and gaining a living by working for others as they find opportunity. Capital is, however, gradually coming in, and ere long this camp will take a prominent position as a bullion producer.

It is very favourably situated as to shipping facilities, as the Atchison, Topeka, and Santa Fé Railroad has a depôt within a mile of the south end of the camp, and a narrow-gauge road has been located, and is now in course of construction, which will partially intersect the camp, and will connect it with the Colorado system of railroads. Santa Fé is 20 miles distant by wagon-road. The account of this camp would be incomplete without mention of the celebrated Turquoise Mine, out of which the famous turquoise jewels of the Spanish crown were obtained. This mine is in a hill almost in the centre of the camp, and forms a very prominent feature of the district. Some 300 years ago this mine was worked by the Spaniards by means of Indian peons. A sudden cave in caused the death of a large number of these labourers, the number being variously stated by the traditions of the Indians at from 30 to 300. The attempt to fill their places by a forced conscription caused the Indians to rebel, and finally to drive the Spaniards out of the country. The Indians then systematically filled in every one of the mines to obliterate as it were every trace of their slavery, and the Spaniards were only allowed to reoccupy the country on the express condition that no mining should be done. These old Spanish shafts are every now and again being found, and are objects of special search by prospectors, who regard them as valuable finds.

This turquoise mine was recently opened up by capital said to have been supplied by a prominent New York jeweller, with a view to revive the ancient taste for turquoise jewellery, but the results were so meagre compared to the outlay that it was finally abandoned. The Pueblo Indians, who reside in the vicinity, and who regard the stone as a species of talisman, are now the only ones who make any effort to find it, and this they do by turning over the immense dumps of the old workings, and selling the fragments to railroad travellers at the adjoining depôts. Very few specimens of really good turquoise are ever found however, and when found are religiously kept by the finders. This camp has a bright future before it, as it has stood the test sufficiently long to prove its permanence.

In my next will be given an account of the old and new placers, and of the Ortiz Mine grant. JOHN ROBERTSON, M.E.

Las Vegas, New Mexico, March 10.

GOLD AND DIAMOND FIELDS OF SOUTH AFRICA.

SIR,—I wrote some weeks ago that in consequence of the wooden-headed policy of the Mining Board I doubt whether even the Central Company will declare a dividend for the current quarter. They held their quarterly meeting on Tuesday last, and I regret to say no dividend has been declared. The Mining Board held a special meeting this morning to consider the difficulties which has arisen in carrying out the searching system, and the proceedings throughout were a disgrace to Kimberley. Mr. Olsen continually called Mr. Moreing "a d——d liar, a sneak, and a humbug," and this kind of conduct was persisted in until all the respectable members of the Board left the room, when the representatives of worthless ground had everything they required. This disgraceful conduct will be fully reported in all the papers and sent to every capital in Europe. Is it therefore any wonder that capitalists shun this place as they would a pestilence? I repeat, as I have done for the last 20 months, that if the Mining Board is done away with, and every company allowed to work on its own merits, capitalists may look with favour on this place, but I would as soon advise capitalists to pitch their money into the sea as to subject it to the control of individuals whose most rational conduct is delirious. The wealthy illicit diamond buyers are in a dreadful state of mind because 10,000*l.* worth of stolen diamonds have been diverted from their channel, and so the boy who unfortunately found them has got 15 years' penal servitude. I have for a long time called attention to the fact that "the pound of flesh" policy adopted by the London and South African Exploration Company was detrimental to their own interest, and ruining every digger in the Bultfontein and Dutoitspan Mines. I again advise the company to change their policy before it is too late; as far as their position here is concerned they are resting on a volcano, and the feeling against the company is very bitter. At a public meeting held last Thursday, to consider the present state of affairs, Mr. Graham said "he would be sorry to see ill-feeling against any man, but Mr. Kilgour's action was calculated to create a breach of the peace. He said they had seen and heard of deeds in Ireland, brought about by much slighter wrongs than this man was attempting at the present moment. There was a great want of spirit not only on the fields but also throughout South Africa. The people here had been quietly sleeping whilst these schemes were maturing, and they were now beginning to reap the result of the machinations of Webb and Kilgour" Another speaker said "he was a republican from his head to his feet. They must now show the company that the standholders were not dead to their interests, and would not allow them to ride rough shod over their heads. They could not go to war without guns and ammunition, &c." I quote the above to show the state of society here at the present time, but it only gives a faint idea of the real state of affairs; secret meetings are being held all through the province, and it is said men are secretly arming, a spirit of unrest pervades the community, and I shall not be surprised any day to find that the people have risen as one man, have again severed their connection with the Cape Colony, and declared this the Independent Republic of Griqualand West. I have given several warnings in your valuable Journal, which if heeded in time would have prevented a great deal of misery. I stood alone in foreshadowing the failure of so many companies and the present commercial stagnation, and if I am the first to shadow forth in England the present revolutionary feeling of this place it is no less true.

The interest of the London and South African Exploration Company is, to a certain extent, my own, and no person is more anxious for the company's welfare. I would, therefore, remind them that the class of men who come from Europe to this place are not likely to submit to the treatment of serfs. If we were to declare our independence to-morrow we should be backed by the Boers of the Orange Free State and the Transvaal, which would be a sufficient guarantee of our success. It is only right that investors should know the real state of the country as well as the value of the mines. The diamond market is still very much depressed, and there is really nothing doing in the share market. From every town and hamlet in South Africa comes the same story that men of every class are hard up for money, and that business is in a state of stagnation. Accidents to the natives throughout our mines, through the culpable negligence of managers and engineers, are becoming more frequent. It is believed that Kamfersdam, Otto's Kopje, St. Augustine's, and Saltpeterspan mines will never be worked again. The news from Jagersfontein is rather favourable, although as far as I can learn the dividends do not amount to much; there can be no doubt that all the companies in Jagersfontein started with an amount of capital utterly inadequate to their requirements, and the amount necessary for the removal of the floating reef is fully six times more than the original estimate.

In the Transvaal everything is wretched. The little money that was introduced by the British troops, and the amounts received for the numerous wind-bag concessions being nearly all spent, both Government and people are getting desperate, and are breathing out anathemas against all those who have been instrumental in any way in preventing the floating of bubble gold companies. It is gratifying to see that the press of Natal are endeavouring to expose the rascality of the Transvaal, and to prevent the public from being victimised. The Natal Mercury, in a recent issue, refers to one of the new gold companies as follows:—"The reputed capital is to be set down at the modest figure of 4,000,000*l.* sterling. But this amount, large as it seems, is insignificant when compared with the anticipated, calculated, and promised returns. We find it very difficult to say much that satisfies ourselves about this scheme." The writer then goes on to refer to hydraulic mining in California, and says: "Do the gold fields of the Transvaal correspond with those of California as regards the existence of placer gold? The promoters of the scheme we refer to assume that they do, but as yet we have only their word for it. Two cardinal conditions have to be established. Does placer gold exist in South Africa, and is it possible by any system of storeage and conveyance to find water enough to work these formations? The promoters of the new scheme take both postulates for granted. They say the gold is there, and the water is there in such abundance that one tract of 5000 acres of auriferous ground alone must earn 600,000*l.* per annum as the lowest yield. But they go immeasurably beyond this estimate for accepting the owner's statement of what the gravel on his property is worth, and halving it, they modestly suggest that the annual yield would be 14,000,000*l.* sterling. Such figures as these, of course, carry us altogether out of our depth; for the farm in question consists of 10,000 acres only, and gold, we are assured, is known to exist on the other 660,000 acres. We confess we should have been better pleased if the earnings had been placed at 6000*l.* per annum. Were we to take the statements and testimony of the bulk of the individual diggers who have visited the gold fields as conclusive on the value of these fields, it would be our duty to warn all concerned against being led away by estimates that are unsustained by experience. Quartz crushing has so far proved a failure. It was tried on a considerable scale at Eerstling, but we have yet to learn that the financial outcome was in any sense satisfactory. Every colonist must hope that the venture will be successful. But do not let anybody be too sanguine, and should failure ensue do not let it be chargeable upon the press or people of this colony that they have induced distant capitalists or investors to enter upon a hollow or dishonest enterprise."

When gold was found in the Transvaal 12 years ago the Natal press were misled as to its value, and both editors and publishers were within an ace of being lynched by an excited party of diggers who had been induced to visit the so-called gold fields through misleading reports; they are not likely to make a similar mistake again, and few persons know the real value of those so-called gold fields better than the people of Natal, who have lost all they are able to lose in trying for 12 years to bolster up an industry which, if it were of any value, would have benefited Natal equally as much as the Transvaal. It is quite possible I may be leaving here shortly for another trip through the Transvaal, it may therefore be some weeks before I shall be able to write you again. CORRESPONDENT.

Kimberley, March 1.

JOTTINGS FROM THE GOLD COAST.

SIR,—The news from the French companies at Tacquah and Abosso continues very good. At Tacquah they have in driving a tunnel come across an auriferous layer over 5 ft. thick, and which is very rich. My informant says it is probably the centre bed predicted to exist by the late Mr. Bonnat; the average value of the ore is estimated at 500 frs. the ton. This company is adopting the amalgamator invented by Mr. Thénot. It has been in operation by the company now for several months past with the completest success; it works with regularity and without hitch. The new stamps are about to be erected, when regular consignments of gold will be made. The action of the Thénot's process is very simple, and consists in forcing all the quartz when pulverised with the water used through a large body of mercury confined in vessels, and which is kept in a state of constant agitation, so that not a particle of the gold however fine can escape, and as the chief difficulty this company had to contend with was the extreme fineness of the gold we shall soon hear of great and satisfactory results from Tacquah.

At Abosso they have also come across very rich deposits of gold, which vary in fineness from an impalpable powder to grains about the size of a pin's head; this gold is, as is nearly all the gold on the coast, very yellow, and of great purity. The process is well adapted also for this company, and corresponding results are anticipated. Of the Gold Coast and Wassau Companies we have lately heard, and are still digesting the favourable reports. My latest advices speak well of both these companies in their continued progress. Of the Cankim Bamoo I hear that three of the veins passing through Akankoo intersect this property. The proprietors will do well to follow this up.

Mr. M'Carthy is still out there exploring and prospecting properties for an association of London capitalists. Coming near to Axim we arrive at Akankoo. Here great energy has been used by the miners left in charge. Three further rich veins have been discovered besides a large amount of work done. One word on the burning question of hydraulicing on the coast. Mr. M'Carthy's experience entitles him to an opinion, and he advises considerable caution before adopting views now being advanced. I quote his words, omitting names, "——— calculates the Tacquah Valley is 100 ft. above the sea level, and 40 miles from the coast, a fall of 2½ ft. per mile, and talks of hydraulicing!" More anon if found acceptable, as I believe it to be reliable. PATIENCE.

FRONTINO AND BOLIVIA, AND ITS MANAGEMENT.

SIR,—Allow me to place on record in the Journal the subjoined statement of facts respecting the Frontino and Bolivia Gold Mine, which are worthy of the careful attention of every shareholder:—

In report dated Jan. 26 of the above mine it is stated (p. 1)—Estimated value of gold, including exchange, 8468*l.*; profit, 2814*l.* 18s. Again, p. 13 of report, we read—"From the look of the mines generally I consider it safe to assure the board that January will be a more satisfactory month," &c. (Signed) Franklin White. The report for January appears in the Journal (p. 381), March 31, and we read—Estimated value of gold, including exchange, 6489*l.*; therefore the more satisfactory results: profits, 1058*l.* 15s. promised for January is that the estimated value of gold is 1979*l.*; loss and profit, 1756*l.* 3s. less—in fact, profits are little better than a third of November's. Comment on these promises and the actual facts is needless. How long will the shareholders allow this management to continue? Will they wait until their shares are valueless, or act sensibly, and change the management. GEO. P. SHEARWOOD.

Upper Norwood, April 2.

CHILE MINE.

SIR,—Can any readers of the Journal explain the delay in the issue of the report and statement of accounts relating to this mine for 1882? Already three months of the present year have gone past, and many of the shareholders are anxiously waiting to know what has been done with the 66,000*l.* produced by the mine last year; but although apparently ample time has elapsed in which to receive the accounts from the mines, the shareholders are kept in darkness as to the results of the past year. I might ask at the same time why the shareholders are not informed from time to time of the progress made at the mine, &c. The only information ever vouchsafed to them now is the quantity of ounces produced monthly. When additional capital was required, however, there appeared to be no difficulty in giving extracts from the manager's letters.

April 4. O. S.

THE MINERAL WEALTH OF VENEZUELAN GUAYANA.

THE CARATAL GOLD FIELD—No. I.

SIR,—As an old gold miner of more than 20 years' experience in various parts of the world, about 10 of which have been passed in the management of some of the principal mines in the Caratal gold field, it has occurred to me that the public, who are investing so largely in the gold mines of Guayana, may be interested in perusing an outline of the mines in Caratal, with all of which I am intimately acquainted. The most important properties at present in operation are those owned by the El Callao (Venezuelan) and Chile (London) companies. A full description of these properties I will send you at a later period. Meanwhile, I may remark that the produce of the Callao Mine is now about 10,500 ozs. of gold per month, and for the present year the total yield will probably amount in value to about 500,000*l.*, of which, I estimate 300,000*l.* will be distributed among the shareholders as dividends.

The produce from the Chile Mine has gradually crept up to about 2500 ozs. per month, and should increase considerably in future. The quartz at this mine is not so rich as at El Callao, but the lode is much larger and stronger, and, under the energetic management of their able superintendent, I expect to see the yield of gold from this mine steadily increase as the stamps in the mill are augmented, until the returns equal those at El Callao. I was underground manager at Chile for about five years, and formed a very high opinion of the value of the mine. The Nacupai Gold Mine was started in 1879 by an American company, and proved highly remunerative until the works were carried on in an unskilful manner, and irrespective of economy, as the results of which the shafts collapsed, causing a suspension of operations. In order to rework the mine, new shafts had to be sunk and new machinery erected, which, of course, necessitated a considerable outlay, and, before the works were properly re-opened, the operations were again suspended. The returns of gold formerly averaged from 2000 to 3000 ozs. per month.

To the west of Nacupai, and between it and El Callao, is the Delle Costa Pinta Mine, formerly worked by the Remington Mining Company. The lodes in this mine are comparatively small, but unusually rich, the quartz frequently producing in the mill an average of 4 ozs. of gold per ton. This property has been recently acquired by the El Callao Company. The veins referred to in the Della Costa Pinta Mine traverse the Callao Bis concession, and as the lode recently discovered in the Callao Bis Company's No. 1 shaft is stated to be from about 4 or 5 ft. wide, and to yield 5 ozs. of gold per ton, it is probable that the small veins in the Della Costa Pinta Mine form a junction in the Callao Bis property, and if so, a permanent mine may be looked for here, apart from the El Callao vein, which also traverses the concession.

Adjoining El Callao on the south is the Los Frailes Mines, recently acquired by the Central Callao Gold Mining Company, of London, and is known as one of the richest mining properties in the Caratal gold field. It is opened on the Los Frailes lode, which is by far the largest and one of the richest yet discovered. Operations were commenced on the Los Frailes Mine in the year 1870 by treating the surface quartz on the outcrop of the lode, which did not yield more than ½ to ¾ oz. of gold to the ton, but at a depth of 17 fms. from surface the quartz is now producing 2 ozs. per ton. There are several other lodes in this property well worthy of atten

tion, which, I believe, will prove on being developed quite as productive as the Los Frailes. The El Callao lode also passes through this property, which is in the centre of the Callao district, and surrounded by rich mines.

The Caratal Gold Mine is about half a mile east of Los Frailes and on the same lode. This little mine has returned as much as 1400 ozs. of gold in 24 days, working with only 10 stamps. To the south-west of the Caratal Mine and also adjoining Los Frailes, is La Union. This property was successfully worked for a considerable period by Dr. Rodriguez, but it has not been opened out systematically. Large quantities of quartz have been reduced, which have yielded 1½ to 2 ozs. of gold per ton. Had the operations been placed under the direction of a competent manager, a rich and permanent mine would long since have been established. I will continue my outline of the Caratal Mines next week. GOLD MINER.

Scorrier, April 4.

BRAZILIAN GOLD MINES.

SIR,—At the recent meeting of this company the Chairman said also "that some tailings that I brought home as rubbish were assayed by Messrs. Johnson and Matthey, and gave 0·175 ozs., and another one gave 1¼ oz. of gold to the ton." Now, it is not likely that I should have had bags made in which to bring 5000 miles that which I considered rubbish. It was the sand which had passed through the stamps grates, and had flowed down the river. Of this sand I brought home nine bags full as samples taken, first close to stamps-house, and thence from different places down the stream to the distance from the stamps of about 600 yards—every sample labelled as to the distance from the stamps whence taken—and this, as I judged the stamps grates to be too coarse, in order that the directors might see for themselves whether anything worthy of notice had escaped the skin beds and was lost. This sand close up to the stamps-house, which of necessity must be the richest, I had constantly been sampling and assaying; sometimes I found nothing worthy of notice in it, but at others I found such as grieved me to see the loss; hence, I say that I brought home the sand so that the directors might see the value themselves of what was escaping, not as rubbish. I need not to have taken the pains of so doing, it was purely voluntary. I gave them also samples of the stuff taken from every place throughout the mines. As to my report, their respected manager at the mines says in his letter that it is a full and an exhaustive one. The shareholders were told at the meeting that the box which lay on the table contained 20 lbs. of gold, but this was not so. On my leaving the mines on Dec. 27 the manager put said box into my hands to take down the country, saying "if you take it it will save the company 20*l*." I took it, but it contained not 20 lbs. but 13 lbs. 6 ozs. . . . Before I wrote my report I had witnessed seven separate parcels of ore, amounting together to 1070 tons, extracted from every part of the mine, and gave them the result in grains of gold of every distinct parcel, and also the average produce of the whole together, which average, as produced by the stamps, was all but the 12th of an ounce to the ton. This, as I said in my report, should have given them a clearer idea as to the present productive state of the mines than any words that I could write. More I could not possibly have done, but not having said that the mines were rich, all is dissatisfaction. They anything but bless me. I would not have troubled you with this letter, but clamour compels me to it.—*London, March* 29. JOHN LEAN.

SAN PEDRO MINE.

SIR,—This company has called a meeting for Wednesday next, either to put down more money or wind up. They had a meeting in December, and have spent 1050*l*. since. A mine like this in a far off country requires directors to be alive to the interests of the shareholders in giving quick information. If it were in England the shareholders could learn about it themselves. The prospects of the mine are in my opinion no better than they were in December. The last call has been paid; there is no dividend; the future is doubtful, and time goes on. Let the shareholders at the meeting then show an unanimity of determination, and bring about a new order of things.—*Lorrimore-square, April* 4. EXPECTANS.

ROCK-BORING MACHINERY—SPEED OF DRIVING.

SIR,—I should feel much obliged if any readers of the Journal would kindly state the rate at which it is possible to drive through Cornish granite an adit sufficiently large for the passage of a trolley—assuming the use of rock-drills, and working day and night. It would add to the value of the reply if instances were given of work actually done, where situated, and cost per fathom (say) of the Mont Cenis, Festiniog, Halkyn Mountain, and any other drivage done by machine. I am interested in a tin mine, and the adit is advancing at a rate that would have taken 100 years to complete the Mount Cenis Tunnel. In the prospectus the manager says it will be driven with "great speed." I believe in more than two years he has achieved about 120 fathoms. If this be "great speed" what would a "slow rate" be?—*Bath, April* 2. R. P.

ROCK-BORING MACHINES—THE SCHRAM DRILL.

SIR,—Referring to Messrs. R. Schram and Co.'s acceptance in the Journal of March 24 of our proposal for a competitive trial of boring machines we hereby agree to the conditions they mention; but we must insist that they and all competitors in the trial shall accept a preliminary open air trial, such as we have indicated, to be held in London, and that, in order to ascertain the lowest pressure at which each machine will work—as proposed in condition, No. 5—the machines shall begin at (say) six atmospheres, instead of three. We wish to have it understood that the trials will be made with such completeness as to warrant the attention and the attendance of a large portion of the mining and contracting public, and to satisfy them as to the respective merits of the competing machines, and the real questions at issue. We claim for our machine, amongst other advantages, that it will work consecutively and without destructive wear or breakage at the conveniently available pressure of five to six atmospheres, and that it will at the same time work with the lowest pressure of any machine—in other words, that our machine uses the power generated more effectively against the rock than any other.

As to the second-hand machines which Messrs. Schram and Co. think we have on hand and are desirous to sell we have simply to say that they were all sold, and delivered immediately on our receiving them from the London and North-Western Railway Company some two years ago—save two which were left by the inspector of our customers, after having made his selection, and which we retain as specimens. It is one of these two machines which we propose to use in the trial. We presume that our competitors will be ready to share the general expenses. MACKEAN AND CO.

Paris, March 29.

ROCK-BORING MACHINERY—LONDON EXPERIMENTS.

SIR,—Our reason for requiring a preliminary open-air trial of boring machines in London, where it would be convenient for people interested in mining to witness the operation of the machines, is that we could not get such persons, who have generally other daily occupations, to travel a long distance to a mine and stay there perhaps for days to see the machines at work successively. After an open-air trial in London we shall be quite willing to send our machine to any mine to be used in practical mining. Referring to the letters which appeared on the subject in last week's Journal we have pleasure in noticing that several others propose to enter their machines in the competitive trial. Replying to Mr. McCulloch, who wishes to know upon what we base our assertion that our machine is superior to all others, we will state that we base it upon the fact that in many tests our machine has bored faster, with a given area of piston and a given pressure, than any other, that it will work with ½ atmosphere of pressure, and that with 6½ atmospheres we have often made, according to actual count with a mechanical counter, 1200 strokes per minute, and have bored as much as 13 in. of 1⅞ in. hole per minute in Scotch granite, with a 4 in. piston machine, which we have never known any other machine to do. And as our machines have remained underground in boring granite for a month at a time without breakage, we count upon proving its superiority by keeping up a severe trial long enough to thoroughly test the staying qualities of all competing machines.

As to its having been "pick and shovel ground" in which our machines have made 188 yards in one consecutive month, we beg to inform Mr. McCulloch that in such ground they could not possibly have made anything like that speed. It is only in a good hard blasting rock which requires no timbering that such rapid advance can be attained. And we may further say, that this having been done in 1878, we think that at present we could easily make greater speed under the same circumstances. With regard to other competitive trials we beg to say that since we went to the Falmouth Exhibition in 1867 we have not thought any of the boring machine trials in Cornwall to be of sufficient importance to warrant the trouble and expense of attending them. MACKEAN AND CO

Paris, April 4.

IMPROVED VENTILATION FOR PREVENTING EXPLOSIONS.

SIR,—In commenting on a letter of mine it is stated in the *Mining Journal* of Feb. 24 that those employing the largest numbers have the cleanest death-list; carry that out and employ more, and have no deaths. It is moreover stated that it would be dangerous in the extreme merely to proportion the air to the number of men, as the emission of gas does not depend upon the number of men at work, but upon the nature of the coal and upon the area of face, which has been opened, &c. Yes, but do not managers open out face in proportion to the number of men they have? It is said that 10,000 cubic feet of air would be inadequate for 20 persons. Sir, I believe you cannot find me a case in the whole history of the coal mining of England in proof of that. But if it is inadequate, apply the first rule. It is remarked that if I possessed sufficient intelligence to observe what was going on around me I should know that it was quite the exception to take the return air over the furnace. I have observed with sorrow that it is done still.

Then it is stated that if my suggestion as regards inspectors were carried out it would deprive the working miners of the protection which they now enjoy from the application of the useful scientific knowledge which the present class of inspectors combine with practical experience in the performance of the duties of their office. Well, as regards the present class of inspectors I do not know them. I have only seen one in my time, Mr. Morton. I do not wish to deprive any person living of good, quite the reverse. But what has deprived so many coal miners of their lives by explosions, so many wives of their husbands, children of their fathers, and parents of their sons?

You say also that my suggestion about the imspection of five mines per week is simply absurd and utterly worthless, and could scarcely be as complete as that of an ordinary fireman. [By ordinary fireman is meant the regular fireman, who is always an experienced and competent miner], and who is as competent as a fireman, whose every day work is to examine mines properly and responsibly? If it takes a fortnight for a scientific, useful, knowing, and practical experienced inspector to make a responsible inspection of a colliery, please what colliery in England has had such an inspection? It seems very strange that such examinations would probably augment accidents and death, as is stated.

If it be abundantly evident that I am imperfectly acquainted with what has been done, is done, and ought to be done, and that little influence will be produced by my suggestions, explosions prove that I am not alone in my dilemma. At all events my object is pure whatever may be the result, and I trust you will use your influence and intelligence for the good of coal miners. Sir Edward Baines said when advocating the claims of the Yorkshire College of Science at Halifax that honest lives were sacrificed in mines; and in a leader of the Leeds Mercury on the occasion of Trimdon Grange Colliery explosion said that science in regard to coal mines was exhausted. Your readers will no doubt respect the opinion of such an eminent and learned man. I hope that explosions will soon be remembered only as calamities of the past.

Kingston, Ontario, March 17. JONATHAN BRAMLEY.

NEW METALLURGICAL PROCESSES.

SIR,—Can any readers of the *Mining Journal* give me information as to the results of the new inventions for smelting iron said to have been tried at the works of Mr. Barthelemy Brunon, Rive de Gier, as noticed by the subjoined paragraph taken from the Alta California:—"Inventions of great importance to the world are now being brought forward which will cheapen many mechanical processes, and are likely to prove very profitable to their discoverers and patentees. In 1859, when Mr. Bessemer wrote from Sweden that, by means of a current of air introduced into a mass of cast-iron in fusion, he could produce at will either iron or steel, the news was simply ridiculed in France. At the present time our rails and cannons are made of Bessemer steel. An experiment, perhaps even more curious than the first one made by Mr. Bessemer for the production of steel from his cast-iron in fusion, has just been made at Rive de Gier, in the works of M. Barthelemy Brunon, the distinguished metallurgist of the district of the Loire. A lump of African iron ore, weighing 32 lbs., was broken up into small fragments and placed in a crucible. As soon as the ore was at red heat a reacting substance was added, and in three minutes the liquefaction of the ore was complete. The produce obtained is iron. All those employed in the establishment, engineers and workmen, were stupified at the result. Experiments will shortly be made in a fully-loaded cubilot at a foundry at Lyons. The reacting substance above mentioned cost about 1 franc (20 cents) per ton. By means of this process a blast furnace, instead of producing 22 tons of cast-iron every 12 hours, would turn out 22 tons every 14 minutes, beside which the furnace would be self-cleaned at each operation." I should also be glad to hear something of what is known as "Bull's process for smelting iron." T. C.

EXTRACTING PRECIOUS METALS FROM THEIR ORES.

SIR,—"Ouvert" in your last issue complains of the patent of Huntington and Koch being surrounded by a halo of mystery. This it may be surmised is because the possessors of the patent having proved it upon a working scale at works some distance from London prefer to let the matter rest upon its merits, which are well-known to many mining experts, and which will sooner or later make a name for it than to blazon it forth as is the fashion with many processes which have failed when tried on a working scale.

So far from it being of no service to Indian mines, it will be of great service when they have found the stuff in working pyritous ores of gold and silver either there or elsewhere. It is claimed for the process and it can be proved that it is more effective and economical than any process at present known, and that it possesses some little attraction may be gathered from the fact that parties interested in mining are now on their way to England for the express purpose of looking into and using it. E. K.

Threadneedle-street, April 5.

THE LATE MR. GEORGE HENWOOD.

SIR,—In the death of Mr. G. Henwood the mining world has lost a very intelligent miner, for he was a practical miner in early life. He told me that without the knowledge of his parents he went to work in Tresavean Mine in early life. He was very conversant with mining, and knew nearly all the mines in Great Britain and Ireland, on scores of which he was employed to report, a work in which he was remarkably ready and efficient. By a singular circumstance about 10 years ago he escaped a watery grave. He had engaged a passage at Liverpool in a steamer bound for New York, but having failed to put in an appearance in due time the ship left him behind. In going down Channel the ship foundered, and everyone on board perished. The mention of that fact reminds me of a narrow escape which my son experienced about two years ago. He had arranged to leave America by a certain steamer; but at the last moment, he scarcely knows how, he changed his mind and came home by another ship. The ship he first intended to come in was never seen after it left the American shore. A providential escape for him. Mr. Henwood spent some years in India as manager of a mine at a good salary, and thereby secured a moderate independence for the residue of his life. His son, Cornwall, was murdered and robbed abroad on the eve of his return to England.—*Truro, April* 3. R. SYMONS.

WHEAL CAMBORNE.

SIR,—Some gentlemen in the Metropolis are, I understand, about to re-open this mine, which adjoins Dolcoath on the east. The mine is dry at the bottom of Wheal Gons, which is its deepest shaft—180 fms. under the surface. It is drained by Dolcoath engines, there being a connection between the two mines, and the lodes—at least the most valuable of them—being the same in both mines. It was worked by the late Mr. Joseph Lyle and party for a few years, ending with 1864, and 40,000*l*. worth of copper, tin, and silver ores were sold thereform. It is alleged that Mr. Lyle's death occasioned the cessation of works. Capt. Thos. Gundry, the celebrated Cornish wrestler, was the agent; and he is still living in Camborne, and can satisfy any enquirer as to the condition of the mine and its prospects. The working shaft was called Tindale's, which is in depth 33 fms. under a 40 fm. adit, but the lode there (Dolcoath lode) is drained by a 50 fm. cross-cut (under adit) from Wheal Gons shaft. The lode is opened from the cross-cut to the 33 fm. level. There are four of Dolcoath lodes known to pass through Wheal Camborne, and, with the exception of the little work done at the 11, 22, and 33 fm. levels on Dolcoath lode, the whole are undeveloped. Situated in the heart of the richest district in Cornwall, this mine presents a very eligible subject for the investiture of capital for its development. It does not involve, in my opinion, the ordinary speculative character of mines otherwise situated. Dolcoath is said to have given over a million profit; Stray Park, at the south, 300,000*l*. profit, and North Roskear, at the north, 110,000*l*. profit. East Pool lodes pass through Dolcoath into Wheal Camborne, which is, therefore, on the strike of the best lodes in the district. The land is the property of the Rev. Sir Vyel Vyvyan, Bart., who has, I am told, granted a lease on liberal terms.—*Truro, April* 4. R. SYMONS.

CATHEDRAL CONSOLS, SOUTH PENSTRUTHAL, WHEAL CREBOR.

SIR,—From private information which I have lately received, I was induced to peruse very carefully the reports of the meetings of Cathedral Consols and South Penstruthal which appeared in the *Mining Journal* last week. Nothing, as it seems to me can be more satisfactory, both of them being on the eve of opening up something good.

I well remember when Wheal Crebor cut a rich lode, producing 10 tons to the fathom. It took place exactly 10 years ago, and I mention the circumstance to prove that mining captains, after many years of persevering toil, reap their reward. On that occasion it was stated, that although the mine had been a heavy drag upon the shareholders for 20 years, yet they never lost their faith, the sett being in a good locality, adjoining the celebrated Devon Great Consols. Further, the captain was publicly congratulated. Perhaps the hour is not far distant when the captain of the Cathedral Consols and South Penstruthal (both of which are situated in the famous Gwennap district) will earn a similar eulogium.

April 5. OLD AMATEUR.

THE CALLINGTON DISTRICT, AND ITS MINES.

SIR,—I congratulate the shareholders of Redmoor, Wheal Lusky, and Trebartha Lemarne Mines. At Redmoor they are getting very near the completion of all the surface erections, when all the cost for the future will be confined to raising and dressing the different ores. Many of the ends and stopes are turning out fair quantities of arsenical mundic and tin. One stope in the bottom of the 112, and two in the back of the 125 fm. levels are turning out silver-lead ores in paying quantities. As all their plant is of the best material it has been a great outlay so far, but now the shareholders may congratulate themselves that the erections are so near their completion that they may soon expect large and, it is to be hoped, profitable and lasting returns. At Trebartha Lemarne it is intended to put the stamps to work next week. The shareholders may expect after that they will soon have their maiden batch of tin in the market, as a great deal of their large lode will produce 3 cwts. of tin to the ton of lodestuff. At Wheal Lusky in driving the adit level west they have got clear away from the junction of granite and killas that disordered the lode, and they are now in the granite formation; the lode now is 6 ft. wide, composed of quartz, flour-spar, gossan, mundic, yellow and grey copper—a splendid looking lode, with two well-defined walls; from the appearances they may not be surprised to strike on a course of ore any day.

This district produces almost unlimited quantities of ochres of every shade, from a very dark red to a white, both included; also very good umber. Manufacturers of paints would do well to know something more of this district, as we have railway accommodation close at hand. We have also fire-clay second to none in the West of England, where samples may be seen, which is also close to rail. There is room for opening up a large field of industry in this district just now for paints and fire-clay alone; both industries have been much neglected of late. I hope soon to see it more sought after.—*Callington, March* 29. JOHN BUCKINGHAM.

IMPATIENT SHAREHOLDERS.

SIR,—I have read with a considerable amount of interest "Guinea Coast's" letter in last week's *Mining Journal*, and after a careful perusal can only arrive at the conclusion that he is one of those discontented shareholders referred to in my previous letter, who seem to expect good paying results from a gold mine after only a few months' working, and if they are disappointed in this anticipation they immediately assert, really without the slightest ground for doing so, that the property in which they have been induced to invest is worthless. In the case of the Guinea Coast Gold Mining Company (in which I have also a large stake), we are assured by Capt. Burton, Mr. R. B. N. Walker, and M. Dahse, that a very valuable reef exists on the company's concession, and in one of Capt. Burton's letters from the Gold Coast he warmly congratulated the shareholders on the brilliant prospects of the mine. If, however, it can be proved that no scuh reef as that referred to exists, and it is the duty of the directors to give the shareholders precise and definite information as to this without a moment's delay, then I agree with "Guinea Coast" the sooner the company is wound-up the better for those interested, but until the statements of the gentlemen I have named are disproved I shall certainly hold my shares and take advantage of the present low price to buy more.

As to the question of machinery I think the directors are acting wisely in not sending it out before they have use for it, and considering that the company has only been in existence a little more than a year, no time has been lost at present. R.

Manchester, April 1.

DIED,—At his residence, Talfourd Lodge, Camberwell, on April 1, at the age of 59 years, Mr. FREDERICK WILLIAM CAMPIN, F.R.S.L., Barrister-at-Law, for many years past the respected and indefatigable secretary of the Inventors' Institute. Since 1845 he has been an esteemed correspondent of the *Mining Journal;* his almost weekly communications on Patent Law Reform for the seven years succeeding that date having been generally recognised as exhaustive, sound, and to the point; indeed it is but fair to his memory to state that the Patent Law Amendment Act of 1852 was to a great extent due to his energy in agitating the question. The benefits conferred upon inventors by that Act were enormous, yet Mr. Campin was still desirous of rendering them further aid. He felt that if England were to keep pace with her mechanical competitors in other countries it was essential that inventors should be encouraged by giving them substantial protection for their genius at the lowest possible price, so that it is not surprising to find it stated that he had been long and incessantly occupied in dealing with matters connected with the

reform and amendment of our Patent Law system, and in fact up to the day of his decease he was busily engaged in the furtherance of movements for the benefit of inventors, by whom his loss will be much deplored. His last ideas on the subject of Patent Laws will be found in the article in the current month's Scientific Review on the Government Patent Bill, at present before the House of Commons, the proofs of which article were revised and corrected by him only the day before his death.

REPORT FROM CORNWALL.

April 5.—There is no doubt that the sentiments which have been expressed in this column with regard to Dolcoath, and the arrangement with Mr. Basset, are those which are very commonly current in mining circles in the West. As time goes on there is no slackening in the vigour of the denunciation of the conduct of Mr. Basset and his adviser, and outside Dolcoath itself, as well as very largely within, the opinion is held as stoutly as ever that it would have been better to trust to the chances of the future, and not to have succumbed to a demand, made apparently in the interests of certain personal family arragements, in themselves the effect of a phase of the land laws, which gave Mr. Basset the power to recoup himself at the cost of his tenants. The mischief, however, has been done, and we are yet only on the threshold of the possible results. We look in vain for any sufficient guarantee of security that this line of action may not be repeated elsewhere, and if repeated that it will be resisted with better effect, and that feeling of uncertainty must and will tell.

If we may judge from the meeting at Dolcoath to-day the balance of opinion as to the best way of raising the 25,000*l.* fine is the issue of new shares, for which, we have remarked, there is much to be said. We hope Mr. Basset's consent is certain; any way let the unpleasant business be settled speedily. The utter injustice of the demand is made more apparent than ever by the falling off in the profit, and the best thing Mr. Marriott can do in Mr. Basset's own interest is to drop special pleading.

Probably more strong language is used without resentment in connection with mining affairs than with any other occupation or industry, but even in mining matters there are limits which it can hardly be expected will be passed unheeded. We certainly were very much struck last week with the strength of the language used at the Levant account, and are not at all surprised to hear there are likely to be legal proceedings taken. To say of a mine manager he does not know his right hand from his left, and in consequence of incompetency wasted thousands of pounds, to condemn the managemennt generally as a byeword and a reproach; to say outright that the committee are only induced to stick to their posts for the sake of their allowance of grog, and to aver that the money for the dividend is stolen from the men's club; to do all this, and in no indirect fashion either, is to set a ball rolling which can hardly be stopped until some one has to pay the penalty. The gentlemen who used this language either said too much or did too little; perhaps, ere long, we shall find out which. Anyway we regard these proceedings as most regretable, and not at all likely to advance mining interests generally, even if in some mysterious way they can be held to benefit Levant.

As a model, on the other hand, of what a mine meeting should be, we cannot do better than point to East Pool, where all was unanimous and hearty. There has been some little question lately in the county as to whether West Kitty is not to be regarded as carrying away the palm from East Pool, and coming next to Dolcoath, It may be so, and it may not. Anyway, they are both excellent mines, and likely to hold their own for years to come; and the one really encouraging feature of the present moment is the very promising character of so many concerns. Whatever may be the case elsewhere in the county, it must now be regarded as proved beyond a doubt that Dolcoath is simply representative in its development of riches in depth, so far as the central mining area of West Cornwall is concerned. That is a point upon which we have always insisted as affording the surest guarantee for the permanence of our great special industry, and it is one which is being steadily borne out by facts in all directions. Indeed, we might almost go so far as to say that it is only a question of depth and perseverance with the whole group of mines that lie upon the master lodes of Camborne and Illogan, under a cloud though some of them at present lie.

The resolution adopted at Killifreth, on the motion of Mr. Bain, should commend itself to all business men. Whenever there are differences of opinion as to the management of a mine, they should be plainly set forth and enquired into. There was no excuse for delaying the passing of the accounts, which had been legally incurred, and, if there is anything to object to, it is quite certain that Capt. Rich and Capt. Charles Thomas may be trusted to find it out. No doubt, on the face of it the expenses are proportionately heavy; but what is the use of grumbling if reasons cannot be given, and, if needful, a remedy provided?

REPORT FROM DERBYSHIRE AND YORKSHIRE.

April 5.—A startling statement, which for a short time caused a good deal of interest inside and outside the locality, was made to the effect that valuable deposits of gold had been discovered at Eyam, which, if true, might have led to an invasion and "rush" that would have been anything but agreeable to the natives. The story was told with a good deal of substantiality; but after all it turned out to have no foundation whatever. The locality is well known for its lead mines, but even these of late years have not made the fortunes of their possessors; but, of course, if gold had been found in connection with the other ore, there would have been a small California with any number of diggers, seeing that the village is but a few miles from Sheffield, where there are always plenty of idle hands who would prefer picking up gold to any other metal. However, the lead still remains, and the gold has yet to be found. This of course is different to the discovery at the Magpie Mine a few months ago, which was a genuine "find" of blende, for which the owners have to be congratulated, for the spirit they have shown and the large outlay made under what may be termed adverse circumstances. In other parts of Derbyshire lead mining has been going on much as usual, work being steadily pursued without the sensationalism that is peculiar to some districts; but there are few limited companies in the Peak or other districts, and the best returns have been made by private enterprise backed up with capital, so that those which have really good concerns do not care to let others partake of them, not being so philanthropically inclined as to beg of people to come and share in their profits. Ironstone mining bears some affinity to lead working; but not so much of it is now being done in Derbyshire, although there is an abundance of iron ore in nearly all directions and connected with the coal measures; but the ironmasters have for several years past paid more attention to the ores of Northamptonshire than they have to their own, so that the raising of the latter has been declining, although the requirements at the same time have been increasing. In some instances royalties have been purchased, and in others purchases are made direct from W. Butlin and Co. and others. The former has a large extent of royalty close to the Midland at Wellingborough, as well as on the other side close to the London and North-Western, and having been the first to develope the minerals in the county his royalties are lower than they have been in late years, whilst he has a fair rate from the Midland Railway Company into both Derbyshire and South Yorkshire. The ore too is probably better than the local, being more silicious, and in some places giving a much higher percentage of metallic iron. These appear to be the reasons for the importation of the ore from a distance, instead of working that at home on the same extensive scale as was the case formerly.

Up to a few days ago the colliers in Derbyshire were fully employed, as orders had come in somewhat unexpectedly from London and other places; but now that the weather has changed, there has been a marked diminution in the demand for household fuel, and as prices had gone up a little, they were now looking the other way. Should the present weather continue, as no doubt it will, the trade will presumably become much worse, and the summer promises to be anything but a good one. The miners who have been shouting themselves almost hoarse for limiting the output of coal by working only five days a week are likely to have their wishes more than gratified, for some of them, even thus early in the year, have had to be content with only four days out of the six. Of course, it remains to be seen whether the short time will have the effect of advancing the price of coal, as the men have been taught to believe. The probability is, that the reverse will turn out to be the case, and that so far from wages going up, they will have have to come down. Steam coal has undergone no material change of late, some few collieries being favourably off, as they are in a position to reach a shipping port direct by one railway, and within a moderate distance. But the bulk of the collieries in Derbyshire are not in that position, so that there is some difficulty in disposing of the hard coal. Of course a considerable quantity is required by the local ironworks and the railway companies, and these are the best customers. Gas coal does not go off so well, and a rather moderate business has been the rule as regards engine fuel. The iron trade in Derbyshire is in a tolerably healthy state, for there has been no diminution as regards the production of pig, for which there has been a steady demand for forges at a distance, whilst the quantity required by the local foundries has been considerable. There is every prospect of a good business being done in gas and water pipes, for which some of the Derbyshire foundries are noted, now that favourable weather has set in.

The trade of Sheffield has undergone but little change recently, so that the principal works are kept going to their full extent. This is especially the case in connection with the heavy branches, and where the output consists principally of rolled material. At Brown's and Cammell's the mills are kept in full operation, and so large has been the demand upon the resources of these two great establishments that it has been found necessary to prepare for putting down increased plant. There is marked activity in the turning out of steel-faced armour-plates, a branch which is entirely monopolised by the two companies; whilst there is also a good business being done in iron ship and boiler-plates. In the crucible and Bessemer steel departments there has been a steady production of the plain material for various purposes, but the pig has to be imported from a distance, which is a considerable drawback. There appears to be scarcely so much doing in Bessemer rails as formerly, seeing that they cannot be exported abroad so advantageously as from the works that are near to shipping ports; but the supplies to the home lines have been good. In springs, pivots, and other railway material business has been rather brisk, and the same may be said with respect to mining and other tools. The leading cutlery houses have had nothing to complain of, the hands being well employed, as have makers of sheep-shears, lawn-mowers. and light garden and agricultural tools.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

April 5.—The quietness in trade which was noticeable last week in view of the Quarterly Meetings is continued this week, and nearly every one is holding off until next Wednesday and Thursday. Manufactured ironmasters much need to get better prices than those now prevailing, and the advance in pigs should help them. Certain it is that they are refusing numbers of the contracts that merchants are now offering them. Marked bars are still 8*l.* 2s. 6d. to 7*l.* 10s., and common ditto 6*l.* Sheets (singles) are 7*l.* 15s., upwards. Vendors of foreign pigs are still asking prohibitive prices, such as 50s. for Derbyshire and Lincolnshire brands. The Coal Trade is without much new feature. The Pelsall Coal and Iron Company are raising some 6000 tons weekly; house coal they quote 9s., and mill and forge 7s. 6d. to 7s.

At a meeting of the Mines' Drainage Commissioners in Wolverhampton, on Wednesday, the Chairman read a report from the surface engineer, stating that some important works were being carried out. Contracts had been made for works at Wednesbury Brook, Portobello, and at the county bridge Willenhall. At Willingsworth, Wednesbury, operations were in progress to drain a considerable area of mineral property. The Tipton district was being materially relieved from surface water, and it had been determined to put down another engine on the Bilston side of the great fault in the Tipton and Bilston district. The Chairman intimated that under the Act of Parliament the Commissioners intended to insist on mineowners keeping all water-courses in good repair.

The annual meeting of the Chillington Iron Company was held in Wolverhampton, on Saturday, Mr. George J. Barker (Chairman) presiding. The report showed a profit of 2838*l.*, which would be applied to the reduction of the debt standing to the debit of the company, leaving the debt at 45,600*l.* The Chairman said that he hoped they were now on the eve of steadily recurring improved times. The alterations which had been made in the American tariff were important, because, after an experience of a great many years, he had found that unless there was a good American demand the iron trade was always flat and under water. The reduction which had been made on hoops and sheets was considerable, and after July 1 the company would very probably experience an increase in orders from the United States. Mr. Riley, of Leamington, complained loudly of the unprofitableness of the concern, but the report was adopted.

The Staffordshire Steel and Ingot Iron Company are proceeding steadily with their arrangements for the erection of works at Spring Vale, Bilston, for the manufacture of steel from the common pigs of this district by the Basic process. It is intended that there shall be three 5-ton converters, with a weekly capacity of 500 tons to start with, but if necessary the capacity, it is understood, will be largely increased. It is hoped that the works will be sufficiently advanced to commence operations early next year. At the annual meeting of the Chillington Iron Company the Chairman referred with much satisfaction to the establishment of this new steel company, and remarked that their manufacture would, in all probability be largely used by the Chillington Company

TRADE IN SOUTH WALES.

April 5.—There is a momentary lull in the Steam Coal Trade, and a consequent falling off in the shipments. Prices are not quite so firm, and inferior qualities are not in active demand. Good qualities, however, maintain their position. The present week will, it is anticipated, show better results. The amount sent abroad from Cardiff last week was 96,985 tons; Newport, 15,004 tons foreign and 5600 tons coastwise; Swansea, 15,189 tons foreign and 5997 tons coastwise. House coal is in good demand, orders having been plentiful during the recent cold weather, but that branch of trade will soon collapse if the present fine weather continues. Small coal is in good demand, at from 4s. 9d. to 5s. 9d., while good colliery-screened stands at about 11s. per ton.

In the High Court of Justice, on Tuesday, the case of "Richards *v.* Howell" was heard. At the commencement of the action the defendant had given up the working of the coal in the mine through which the alleged abstraction of coal had taken place, and the water was rising very rapidly in the mine, and threatened to go into and drown out the workings of the plaintiff in the adjoining pit. So much did the plaintiff feel the pressure of the water rising there that he alleged the defendant had broken through a great barrier of coal belonging to him between the working of the two mines, and the plaintiff then made an application for liberty to inspect, for the purpose of ascertaining whether there had been a breach or not. As the result of that application a very stringent order was made upon the defendant. At that time defendant told the Court he wanted to give up his lease, and there was a dead rent of 1000*l.* a year going on, but he was told that he must not give up the lease until after the inspection. It was now contended that the plaintiff had, ever since July, 1881, when the order was obtained, been working his own coal as a commercial transaction by means of the defendant's plant and machinery for keeping down the water in his own workings, and that without paying any rent. In the result the motion was allowed to stand over for a week, for the purpose of ascertaining whether the plaintiff would undertake to pay the dead rent of the colliery that might be found to be due, not to work his coal any more, and give security for the payment of any damage found to be done by him, his lordship remarking that unless some such satisfactory terms were offered by next motion day the order ought to be put an end to, as asked for.

The Iron and Steel Trades are in a more healthy condition, but prices do not rise. Newport has sent away a parcel of 1500 tons to Baltimore, 1400 tons to Naples, and 410 tons to Tampico. Cardiff has exported one parcel of 580 tons. Iron ore is on weak demand, and prices remain low—from 13s. 6d. to 14s. per ton being quoted. Newport has received 13,802 tons from Bilbao, and 6089 from other places. Cardiff has landed 12,271 tons from Bilbao, and 5743 from other places.

The Tin-plate Trade shows no signs of improvement, notwithstanding that so many works are idle. Speculators are holding off for lower quotations, while manufacturers are stocking rather than sell at a sacrifice. The nominal price of 16s. or even 16s. 6d. per box is not high enough to realise a profit. This battle will probably be fought on till July 1, when the American tariff comes into operation. We shall, probably see some disasters before that time.

TRADE OF THE TYNE AND WEAR.

April 4.—The question of restriction in the Durham Coal Trade continues to be eagerly discussed by the miners, and it appears to be almost certain that they will by a considerable majority decide in favour of a trial of the system. Whether the colliery owners will agree to the sweeping measures of this kind proposed by the miners or to a reduction of the output at all remains to be seen; the feeling amongst the agents and managers of the collieries is decidedly opposed to restriction. Such a measure as that proposed by the miners, if carried out, will certainly add to the difficulties the masters have at present to contend with, and it is extremely doubtful that it will result in any benefit to the miners. On the whole, the miners in Durham are well employed, and there is a prospect of increased wages under the present sliding-scale in the future. A large quantity of coke is sent from Durham to the west coast to the iron furnaces in that district, and the question of the cost of carriage is again much discussed. The rate is of course heavy, owing to the distance, and the gradients are also heavy for the load, especially by the Tebay route, which is the shortest route from the South Durham district. In ordinary times, when hematite pig-iron commands a fair price, the rate is not of so much consequence, but at the present time, when only about 51s. per ton can be realised for this iron, the ironmasters in Cumberland find that the price of the Durham coke presses heavily upon them, and unless some relief is afforded it will certainly tend to the injury of the Durham coke trade, as it will stimulate the coal-masters in Cumberland to produce more coke, although only an inferior coke can be made from the coal in that district. The directors of the railway companies ought certainly to seriously consider this question, as the coke traffic is one of great magnitude. The general trade on these rivers has been considerably retarded again by heavy weather in the North Sea, and many of the collieries have been partially stopped in consequence; there is, however, a good supply of orders, and on the whole a good demand for the coals and coke produced in Durham where tonnage can be obtained. The gas coalworks, however, are not so much pressed for supplies.

An adjourned meeting of the Council of the Durham Miners' Association was held on Saturday, at Durham, to consider the proposal discussed at the special meeting of the Council, held a fortnight ago, to restrict the general output of coal by working 10 hours per day. Mr. Foreman presided. There was a full attendance of delegates. It was explained that after the introduction of the Mines Regulation Act in 1872-1873 the custom was universal in Durham of drawing coals 10 hours per day for single shift. This custom prevailed until 1877, when the colliery owners, under the first sliding-scale terms, claimed the right to draw coals for 11 hours per day. This was disputed by the miners, but ultimately the question was settled by arbitration. The arbitrator also awarded that when 11 hours per day was worked an increase of wages should be given in proportion. This extension of hours, however, was only adopted by two-thirds of the collieries in the county, whilst the remainder continued to work 10 hours per day. After being fully discussed it was determined that a claim should be made to the Durham Colliery Owners' Association to establish 10 hours per day as the recognised time for drawing coals throughout the county. Should the masters concede this request the miners will agree to a proportionate reduction of wages. At this meeting the question of reducing the working days was not referred to, and these will consequently remain as at present—11 shifts per fortnight. It is a matter for congratulation that the miners only ask for a reduction of one hour per day at two-thirds of the collieries, and leave the question of reducing the number of days worked in the week in abeyance; but even the change asked for would largely reduce the output. Where 2000 tons per day is worked the output would be reduced 1000 tons per week, or 50,000 tons per annum, and taking the value of the coal at the pits mouth at 4s. 9d. per ton the gross proceeds would be reduced by nearly 12,000*l.*

In Northumberland the late advance of price conceded to the miners has led to strenuous efforts being made to secure better prices, but so far with only very moderate success. This excellent steam coal is now produced (especially where the long-wall system has been introduced) of very large size and excellent quality, but there is a keen competition from other fields, which will, we have little doubt, prevent any great rise in price: 6d. per ton advance has been got for some of the best brands of this coal lately, and now that the Baltic trade is opening out it is hoped that this will be maintained. Large orders have been received for this coal from southern markets lately also. There is no question of restriction in the steam coal district; the men are only too glad when fully employed. The official return of the accountants under the new sliding-scale in this trade has been published, from which we learn that the nett average selling price of coal for the three months ending February, 1883, was 4s. 11d. per ton, this being an increase of 3d. upon the standard average selling price of 4s. 8s. per ton fixed in the agreement of March 9, 1883. The present rate of wages for miners and banksmen will, therefore, be reduced 1¼ per cent., calculated upon the present standard wage.

It is hardly necessary to remark that very few new winnings for coal are now in progress here, but the late winnings are being further developed in some cases. At the Shive Moor Colliery, a few miles north of the mouth of the Tyne, a shaft has been sunk, and also a slope drift made to the High Main seam. This is the original Wallsend house coal seam, which was worked in the early days of coal mining in Northumberland, the Shive Moor old colliery having been one of the earliest winnings for coal in the county. It is expected that it will be found that the old men have left a good deal of this valuable coal, and the output will be much increased at those works, and as this seam is a first-class house coal the winning of this seam will add materially to the value of the works. At Marsden new winning when the first shafts were sunk (after encountering great difficulties from water) by the Chaudron system the house coal and steam coal seams are being rapidly developed a considerable quantity of coal is now worked. There are also valuable beds of limestone in the estate, and a large quantity of this stone is now sent to the chemical works on the Tyne and to the adjacent towns for building purposes. At the Walbottle Colliery new shafts have been sunk, and a good seam of coal has been reached. The winning of this seam will add much to the value of the works, and the output will also be increased. Good seams of fire-clay have also been found here.

The Weardale lead mines question was supposed to be in a fair way of being settled, but this has not yet been effected. The working of the mines has been relinquished by Mr. Beaumont, but the Ecclesiastical Commissioners expect to arrange with another company to work the property; the arrangements for that purpose have not, however, yet been completed.

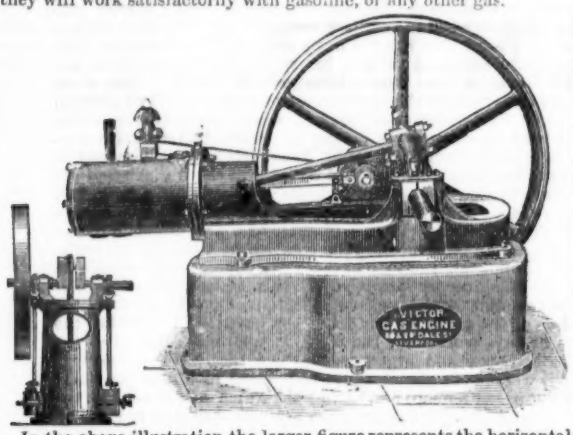
The Iron Trade has continued quiet, but shipments have been good, both of pig-iron and steel. The Baltic trade is now being opened out, and pig-iron is sent to Stettin and the Lower Baltic ports. The Belgian and German demand is also increasing. A heavy shipment of iron to the Continent is expected in April. The tendency which is shown for higher prices for manufactured iron is also an encouraging feature. The late advance has been maintained, and in some cases improved upon. Ship-plates are 6*l.* 5s. The long-pending

wages difficulty has at length been settled, the employers conceding the old rate of wages for six months longer, with an understanding that there shall be a restriction of make, and that a sliding-scale shall follow. There are some doubts about the application of restriction, and the working of the system will be watched with much interest. Pig-iron remains at 40s. for No. 3. Messrs. Connals' stocks have declined 793 tons in the week. The shipyards on these rivers continue to be fully occupied, and most of the engineworks, boilerworks, and foundries are also well supplied with orders. There is also a good business doing in fire-bricks and fire-clay goods generally, and also in cement, chemicals, &c. On the whole, the volume of business is large, and with the advent of fine weather may be expected to increase to a great extent.

The return of the Cleveland ironmasters for March shows that at the end of that month there were 120 furnaces at work, 85 of which were making Cleveland iron and 35 hematite. One more furnace has been put to work by Messrs. Bolckow, Vaughan, and Co. during the past month, but this furnace is not making Cleveland iron. One furnace has been changed at the Carlton Ironworks from Cleveland to hematite. The make of Cleveland iron during March was 158,129 tons, while the make of hematite was 78,866 tons, making an aggregate of all kinds of 236,955 tons. The make of Cleveland iron in March was 14,262 tons in excess of the February make, and the make of hematite, &c., 10,243 tons in excess of February. The greater number of days in March accounts for the increased make. Stocks have declined during the month, while makers' stocks have increased 7974 tons. Makers' stocks for the whole district stand at 197,711 tons; makers' stores are 21,015 tons; N. E. R. stores, 6645 tons; Connal and Co.'s stores, 81,870 tons—giving a total of stocks and stores of 307,241 tons, against 307,745 tons at the end of February. The stocks have turned out as anticipated. The movement to restrict the make will, it is expected, strengthen the market. On Tuesday the market at Middlesborough was very dull, but there was little change in prices. The export trade in pig-iron has improved considerably; during last week the amount was 23,000 tons iron, and 9648 tons of steel. The demand from the Continent is large. The import of Spanish ore is decreasing, as it is found that quite as good steel can now be made from Cleveland iron as from Spanish ore. There is a firm feeling in the manufactured iron trade, and prices are expected to improve.

NEW GAS AND OIL ENGINE.

There are so many purposes to which a limited quantity of mechanical power can be advantageously applied that gas engines have of late come largely into favour, and the result has been that many ingenious improvements have been introduced, which have made gas engines as economical in use, as they are cleanly and convenient. Amongst the most recently introduced are the Victor gas engines, at present being manufactured by a Liverpool company, which takes its name from them, and as they have not only proved efficient when worked with ordinary illuminating gas, but can be equally well employed with the cheaper kinds of coal oil and its analogues, they are likely to come largely into use, and are worthy of consideration in cases where previously the application of engine power has been altogether impracticable. The manufacturers claim that these engines are compact, and take up little room either in the matter of height or floor space. They are very useful for driving small machinery of every description. They require no separate meter, and, having no complicated parts, they need little attention. The wear and tear is slight, and where coal gas is not available, they will work satisfactorily with gasoline, or any other gas.



In the above illustration the larger figure represents the horizontal silent Victor gas engine, which is very useful for driving electric light machinery, working printing machines, hoists, chaff-cutters, lathes, and for driving tramcars, &c. This engine is said to have given general satisfaction. The smaller figure represents what may be termed the domestic engine; it is applicable for pumping, and driving sewing machines, or any other domestic machinery. The motion of the engine is very regular, and it is stated that a 3-horse power Victor engine has been running since April last, and neither slide, valve, nor piston have yet required cleaning. It is very economical in the consumption of gas and oil. The different classes of these engines appear to be thoroughly well finished in every way. The makers are introducing their special Victor for electric lighting purposes. It gives off power at every revolution, and the company are sanguine that it will prove the best gas engine for such purposes.

ALBERT MADALS.—The award of Albert Medals for Bravery on Land to three members of the Chesterfield and Derbyshire Institute of Mining, Civil, and Mechanical Engineers was properly taken advantage of by Mr. W. F. Howard, the secretary to the Institute, to place the details of that honourable decoration in the Transactions of the society. The Albert Medal of the First Class was conferred on Messrs. Reuben Smallman, M.E.,; A. H. Stokes, Inspector of Mines; Charles Day, collier, and Charles Chetwynd, collier; and of the Second Class on Messrs. Samuel Spruce, M.E.; F. S. Marsh and H. T. Mottram, certified colliery managers, and W. Morris, W. Pickering, and Joseph Chetwynd, colliers. The paper contained an interesting account of the institution of the decoration, and of the circumstances of the fire and explosion at Baddesley Colliery, as well as of the conspicuous gallantry which earned the awards. The paper and the acompanying representations of the medals will form a handsome addition to the Transactions of the Institute.

TREATING SOLUTIONS USED IN PURIFYING COPPER ORES.—In the treatment of copper precipitate or ores by solutions of alkaline sulphides, hydrates, or carbonates by Claudet's invention of Dec., 1881, or Watson's of March, 1882, certain liquors are obtained, for the treatment of which Mr. DAVID WATSON, of Manchester, has obtained a further patent. These liquors contain alkaline arsenate, and sometimes alkaline phosphate, and where alkaline carbonate was employed in the purification, probably alkaline carbonate. Other alkaline salts, as the chloride, which may be present, lie outside the intention of this invention. These liquors, which may be of various degrees of concentration, are to be boiled or heated with agitation, either under the ordinary or increased atmospheric pressure with calcium hydrate in sufficient proportion, in which operation the alkaline arsenate and phosphate are decomposed (and under certain circumstances the carbonate) insoluble calcium arsenate, phosphate, and soluble alkaline hydrate being produced. The liquor filtered from the insoluble residue of calcium, arsenate, phosphate, hydrate, and in some cases carbonate, is now again available for the purification of copper precipitate or ores. He finds it convenient to employ for treatment liquor which will yield not more than 10 per cent. of caustic alkali after treatment, although more or less concentrated liquors may also be treated, and he prefers to use three times the amount of caustic lime theoretically required for the chemical decompositions that take place.

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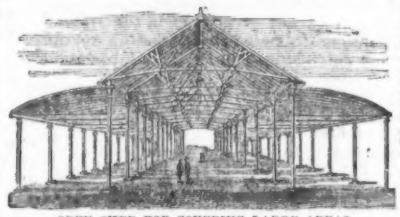

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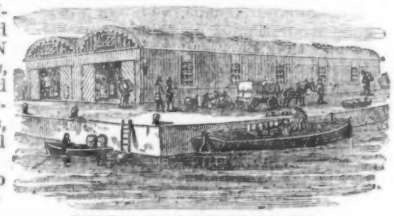

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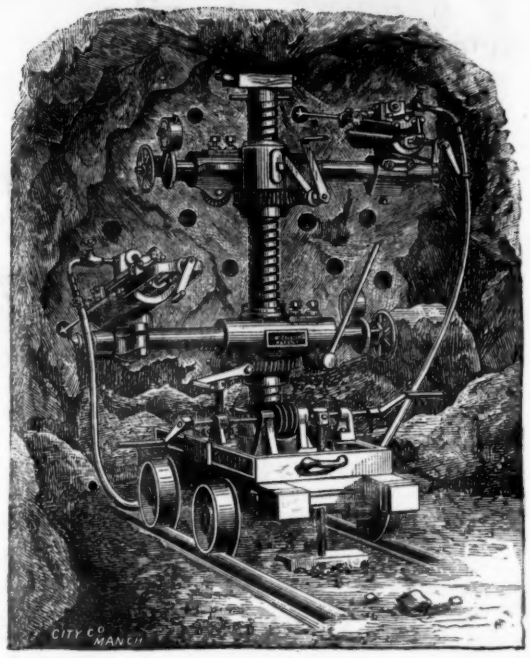

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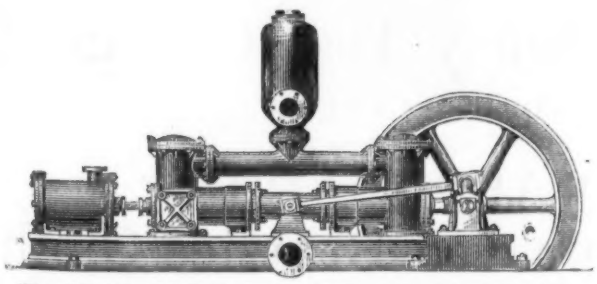

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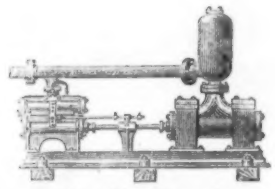

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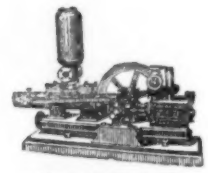

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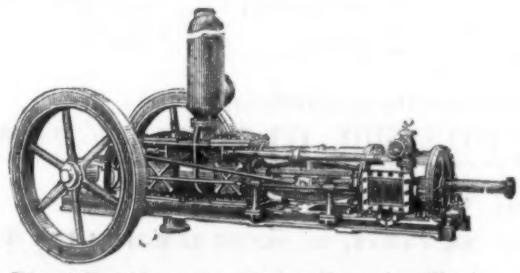

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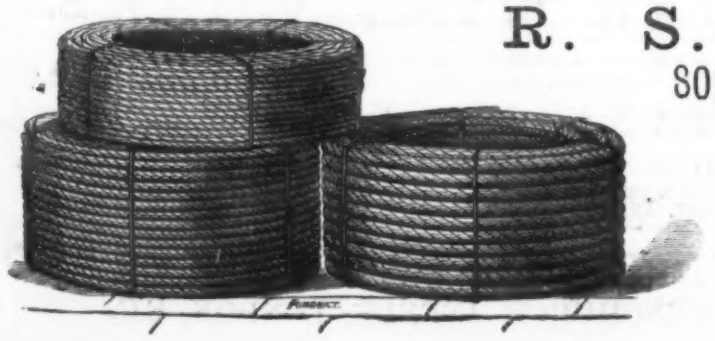

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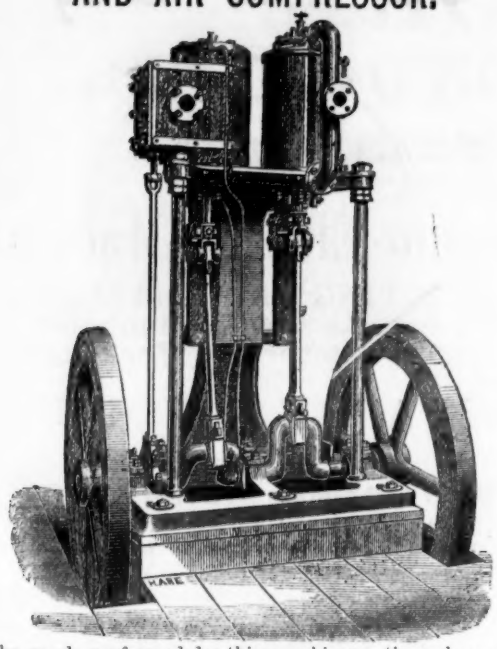

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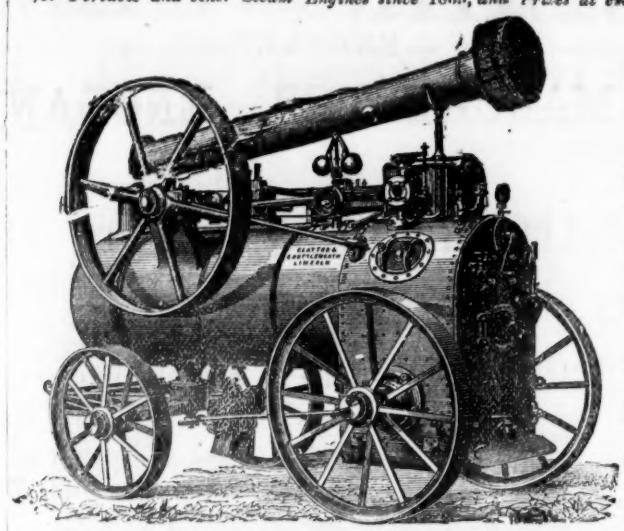

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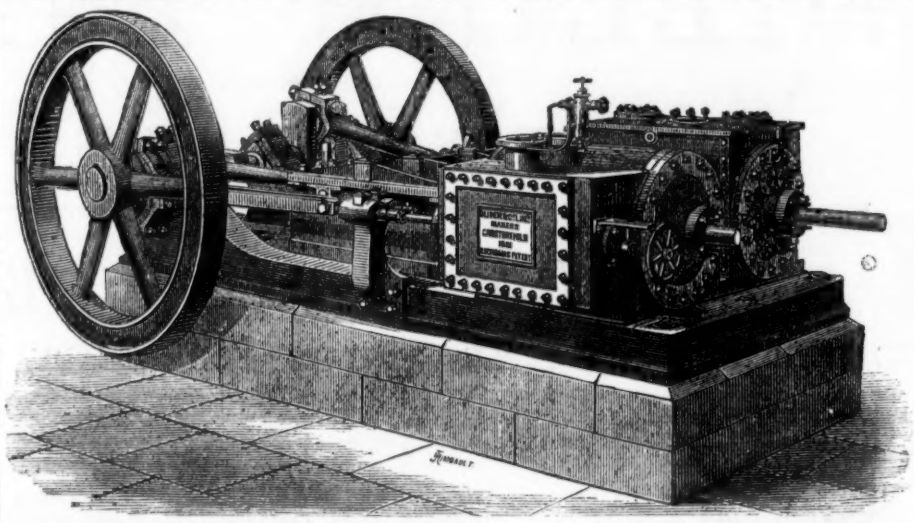

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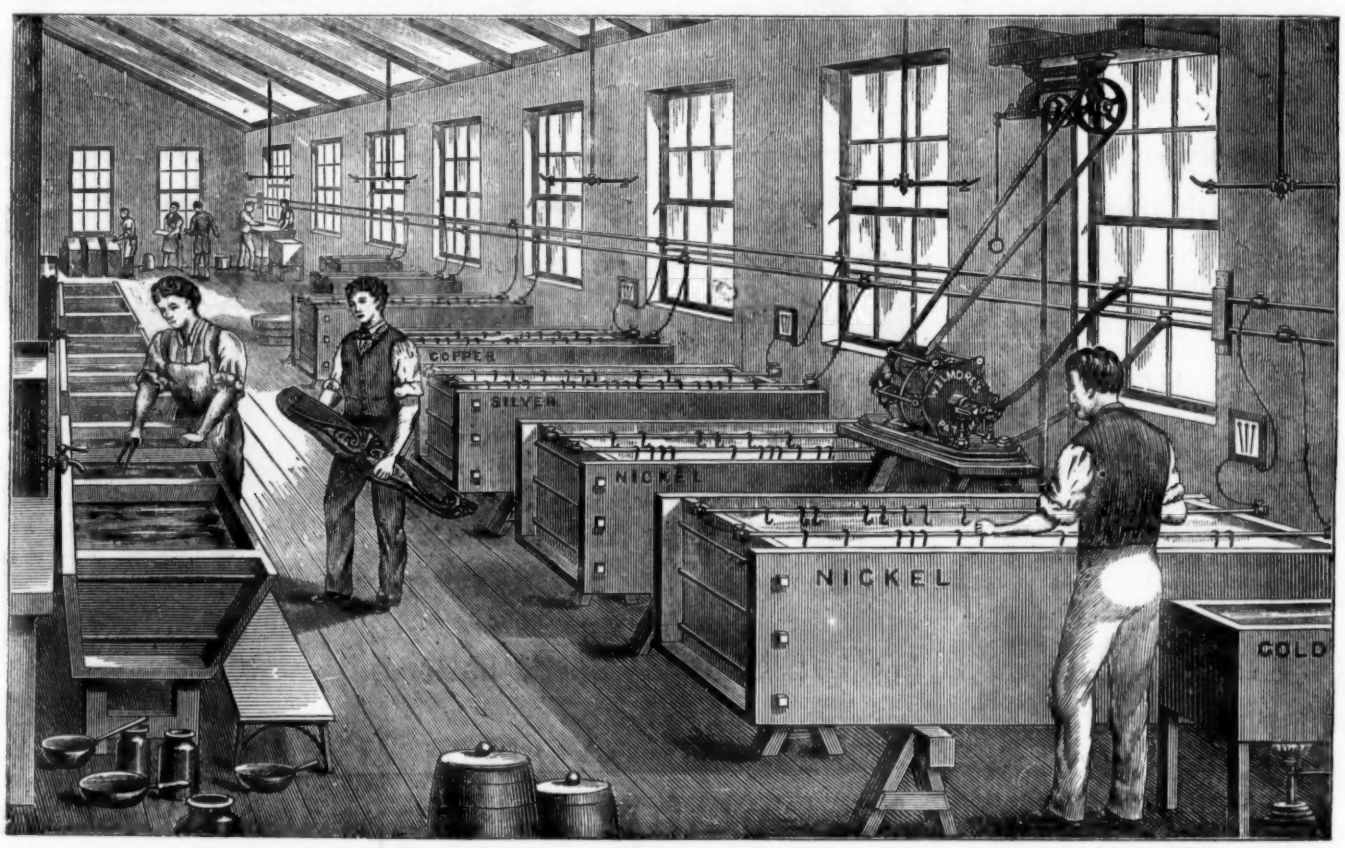

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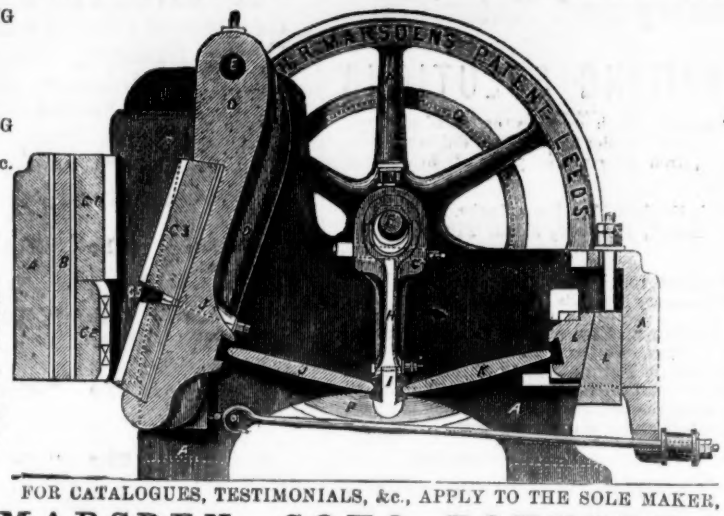

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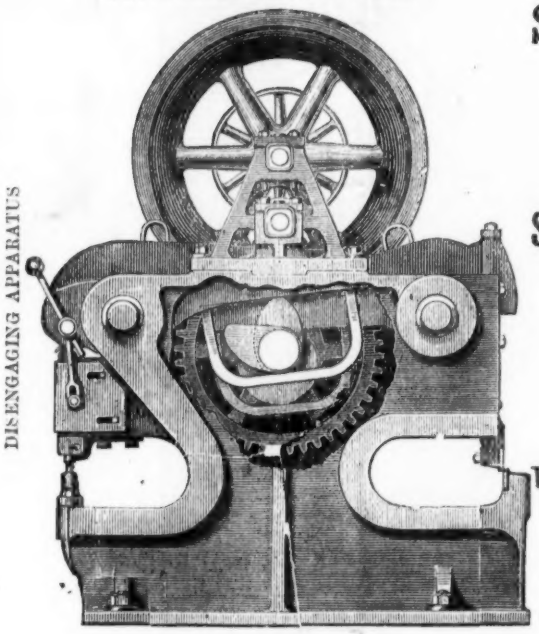

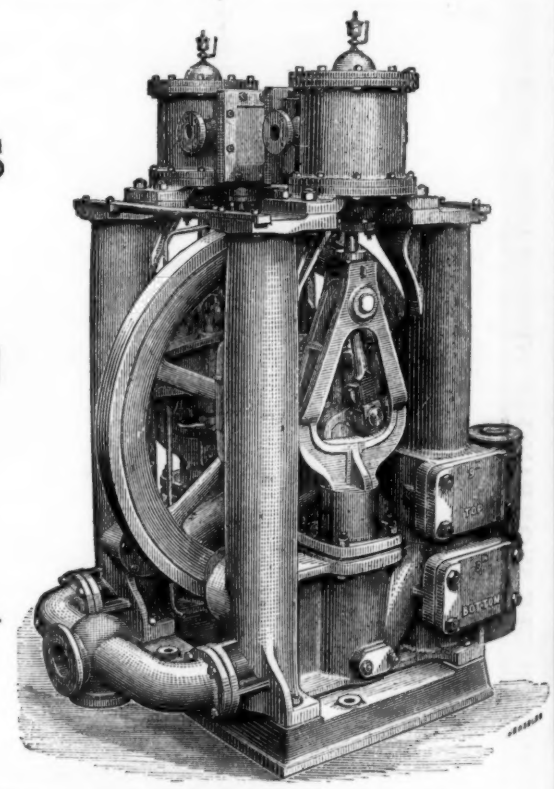

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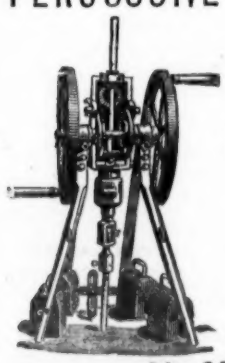

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